REMARKS

By this amendment, claims 1-16 have been canceled in place of claims 17-32 to place this application in condition for allowance. Currently, claims 17-32 are before the Examiner for consideration on their merits.

In light of the issues of indefiniteness raised in the Office Action and the prior art rejection, new claims 17-32 are submitted for consideration by the Examiner. In review, new claim 17 results from a combination of former claim 1 with former claims 2, 7, and 8 and with parts of the description, namely page 2, lines 27 to 32, page 3, lines 1 to 6, page 3, line 11, and page 5, lines 1 to 4.

Claim 17 is also revised to characterize the layer succession in terms of its structure via the particularly claimed epitaxy methods. This feature is included in claim 17 as well as method claim 23 since the structure of the semiconductor-device is essentially affected by the temperature of fabrication. By using a temperature of equal to or less than 600°C to the layer succession with the claimed features means that the formed semiconductor crystals exhibit an unexpected different crystal structure, resulting in new characteristics of the whole device.

New claim 18 results from former description, see page 2, lines 27 to 32, and page 3, lines 1 to 6.

New claim 19 corresponds to former claim 3 but has been written more precisely now.

New claim 20 corresponds to former claim 4 but has been written more precisely now.

New claim 21 corresponds to former claim 5, wherein "layer successions" has been replaced by "semiconductor-layer successions".

New claim 22 is identical to former claim 6.

New claim 23 results from former claims 2, 7, and 8 together with parts of the description, namely page 2 lines 27 to 32, page 3, lines 1 to 6, page 3, line 11, and page 5, lines 1 to 4.

New claim 24 results from the description, see page 2, lines 27 to 32, and page 3, lines 1 to 6.

New claim 25 results from the description, see page 4, lines 13 to 15.

New claim 26 is now dependent from method claim 7 and results from former claim 10.

New claims 27 to 32 have been amended according to new claims 19-21.

In review, claims 1-7 and 9-16 are rejected under 35 U.S.C. § 102(b) as being anticipated by the article authored by Ellmers (Ellmers). Claim 8 is rejected under 35 U.S.C. § 103(a) on the grounds that the recited temperature limitation is nothing more than an optimization of the epitaxy method. Applicants respectfully traverse the rejection in light of the submission of the new claims described above.

First, since claim 23 combines the features of claims 7 and 8, the rejection based on 35 U.S.C. § 102(b) against claim 23 is now moot. For claim 17, it is also argued that defining the structure of the layer succession in terms of the epitaxy treatment also removes the rejection based on 35 U.S.C. § 102(b). The rejections are addressed under the headings of the two independent claims 17 and 23.

Anticipation and Claim 17

The revision to claim 17 raises the issue of whether the claimed succession layer is found in Ellmers, either explicitly or inherently, or is an obvious outcropping thereof.

New claim 17 discloses a semiconductor-layer succession wherein the layer succession has at least one strain-compensating layer for surrounding layer(s) of a semiconductor device. The layer succession is achieved by means of metal organic vapour phase epitaxy (MOVPE) or other deep temperature vapour phase epitaxy methods at a temperature of equal to or less than 600°C. The strain-compensating layer(s) are semiconductor-layers strained by tensile stress. One or several layers of the device are featured with arsenic and/or phosphorus by use of TBAs sources and/or TBP sources.

It is true that Ellmers disclose a semiconductor-layer succession containing strain-compensated layers achieved by MOVPE using TBAs and/or TBP. However, claim 17 shows novelty in contrast to the teachings of Ellmers due to the fact that a MOVPE temperature of equal to or less than 600°C is used. With this processing, the deposited crystal layers show a completely different growing behaviour during MOVPE compared to crystal layers growing at temperatures higher than 600°C.

The Examiner's attention is directed to paragraph [0004] of the published application, wherein the prior art processing is discussed. Here, it is acknowledged that the prior art processing using temperatures greater than 600 °C means that long wave lasers of good quality are only created for wavelengths up to 1,000 nm.

Turning to paragraph [0010] and following this paragraph, the invention is the discovery that the use of the low temperature of less than 600 °C means that an advantageous strain compensation is reached when layers-within layers to be compensated in their individual or common strain are deposited during epitaxy. As stated in paragraph [0012] two wavelengths of 1,050 nm and 1,260 nm are able to be realized. The present invention builds a structure with significant different characteristics than crystal layers deposited by the higher temperatures employed in Ellmers.

It is submitted that the low temperature treatment creates a succession layer not found in prior art since the prior art does not practice the inventive processing. This means that the succession layer of claim 17 is not the same as the succession layer produced using the 625 °C treatment temperature of Ellmers and that Ellmers cannot be said to anticipate claim 17 for this reason.

Another limitation in claim 17 is that the straining is by tensile stress. It is submitted that this limitation is not taught or suggested by Ellmers and this is another reason that the rejection based on 35 U.S.C. § 102(b) cannot stand. The Examiner is requested to provide objective facts to support a further contention that this claim particular claim limitation is somehow found in Ellmers.

In light of the above, it is submitted that Ellmers does not establish a *prima facie* case of anticipation against claim 17.

Obviousness and claims 17 and 23

As noted above, the inclusion of the limitation of claim 8 into claim 7 as new claim 23 removes the anticipation issue so that the only issue to resolve is the obviousness of the method of claim 23. The resolution of this in favor of Applicants for claim 23 also means that there is no basis from which to challenge that claim 17 is obvious based on 35 U.S.C. § 103(a).

As mentioned above, Ellmers describe strain-compensated layers that are

deposited at a temperature of more than 600°C. There is also noted, that the achieved AlAs/GaAs-Bragg-mirrors are highly sensitive concerning oxygen-contaminations contained in the educts. As a solution for this problem, Ellmers state that a temperature of more than 600°C, namely 625°C, is an optimal temperature for growing such crystal layers for reducing O-contamination.

So it was not obvious to search for optimizing conditions by lowering the temperature. However, it is more likely that a person skilled in the art would have tested higher temperatures instead. Thus, even if one of skill in the art would be motivated to optimize the temperature of Ellmers, such an optimization would not go in a direction away from what Ellmers suggests. In fact, by Ellmers' teaching that the temperature should be more than 600 °C, this would lead one of skill away from the invention. Put another way, the general condition to be optimized would be temperature more than 600 °C and such an optimization would not lead to the claimed invention.

Even if the Examiner were to insist that optimizing the temperature would be within the skill of the art, it is submitted that the results associated with the invention rebut any allegation of obviousness. As argued above, limiting the temperature that crystal layers are grown to less than 600°C results in unexpected characteristics with respect to gaining mirrors suitable for producing wavelength of more than 1,000 nm or even in the area of 1,260 nm. These unexpected findings means that it is not be possible to discover the invented semiconductor-layer succession by simply searching for an optimization of the previously known semiconductor-layer successions. Thus the found solution is inventive.

Any continued allegation of obviousness could only be based on the hindsight reconstruction of the prior art in light of the invention. Since this approach cannot serve as a basis for a rejection under 35 U.S.C. § 103(a), any such rejection could not be sustained on appeal.

SUMMARY

In summary, Ellmers fails to establish a *prima facie* case of anticipation or obviousness against claims 17 and 23. Thus, these claims along with their dependent

claims are now in condition for allowance.

Accordingly, the Examiner is requested to examine this application in light of this amendment and pass all pending claims onto issuance.

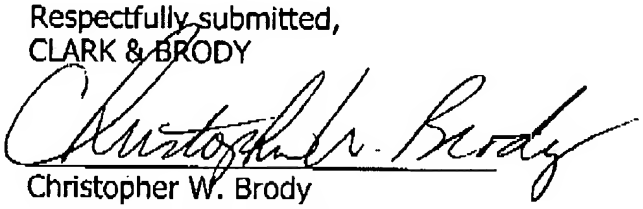
If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated January 11, 2008.

Again, reconsideration and allowance of this application is respectfully requested.

Please charge any fee deficiencies to Deposit Account No. 50-1088.

Respectfully submitted,
CLARK & BRODY



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